

AN EVALUATION OF THE EFFECTIVENESS  
OF THE MINNESOTA SAFETY GRANT PROGRAM

By

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A Research Paper

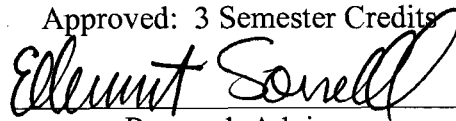
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A handwritten signature in black ink, reading "Edmund Sonell". The signature is written in a cursive style with a large, looping flourish at the end.

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ABSTRACT

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The Minnesota Safety Hazard Abatement Grant has been a viable part of the Workplace Safety Consultation programs for the past 13 years. The grant program was developed to assist public and private Minnesota businesses with the purchase of equipment or real property to improve worksite safety conditions. This research explores the impact utilization of a safety grant has made on construction businesses within the state. Grants issued from 2000 through 2004 were examined to determine if the purchase of equipment has been helpful to contractors at reducing losses. The results were determined to be quite favorable of the program, with notable reduction in lost work days and associated indemnity costs for grant participants. In addition to studying loss information, a survey was also developed and mailed to the grant recipients to determine overall satisfaction rating of the grant program. The survey results also reflected a

positive response to the program. When compared to previous research conducted on the grant program, it is encouraging to note the positive effects the program has had at loss reduction within the state.

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## Chapter I: Introduction

In 1992 the Minnesota State Legislature authorized the development of the Minnesota Safety Hazard Abatement Grant Program (hereafter, the grant program or safety grant program). Administered by the Minnesota Department of Labor and Industry (DLI) Workplace Safety Consultation (WSC) unit, the grant program is intended to provide assistance with hazard abatement to both public and private Minnesota businesses. The grant program awards matching dollar for dollar funds or 50% of an abatement project's total cost, not to exceed \$10,000 total grant award (Kipman, Collins, Park & Zaidman, 1999). In order to be eligible for the grant program, an employer must first be financially capable of meeting the matching dollar requirement of the program. They are required to have workers' compensation insurance through a state fund plan, through an insurer subject to state penalties, or be self-insured. The employer must have been subject to an on-site safety survey conducted by Minnesota Occupational Safety and Health Administration (MN OSHA) or another similar authority and the survey must have resulted in specific recommendations for improvements to safety practices and equipment that would help reduce exposures to employees. The employer may then apply for grant dollars, which can be used to purchase, install, operate or maintain recommended safety or health equipment, or to purchase or rent real property, if necessary, as determined by the on-site safety and health survey.

Since the award of the first safety grant in 1995 (Kipman et al., 1999), a total of \$10.4 million has been paid to 1,510 Minnesota businesses, ("Grant Dollars Help Employers Increase Worker Safety, Health", 2005). According to the statute and rules governing the grant program funds are appropriated to the grant program through the Assigned Risk Safety Account (Minnesota Rules 5203.0010 through 5203.0070, 2004, and Minnesota Statute, 79.253, 1997).



account receives its funds through fines relating to workers' compensation violations levied against employers and insurance companies. Some examples of these fines are late filing of the First Report of Injury form, late payment of benefits, late denial of claims, and uninsured employers. As a result of this funding mechanism, the Minnesota Legislature determined in 1992 that a minimum total of \$200,000 would be made available in each quarter to fund the grant program (Kipman et al., 1999).

Although the safety grant program has been funded from this account for 13 years, very little has been done to evaluate the effectiveness of the program, validating appropriate use of these funds. This is due in part to limited resources within DLI and WSC in general to complete such an evaluation. Despite the restrictions these departments are faced with, DLI was able to perform one research study in 1999 relating to WSC programs and activities, including the safety grant program. This research evaluated the overall satisfaction of those utilizing the grant program, and the effect receipt of a grant may have had on the safety culture within their organization (Kipman, et. al., 1999). Companies receiving grants during fiscal years 1995 to 1997 participated in the study. The results of this research indicated that the safety grant program "successfully met expectations of the participant companies and resulted in positive workplace safety outcomes" (p. 7).

Although the results of the previous research were favorable as they relate to the satisfaction and safety cultures of those participating, the research did not evaluate the extent to which the grant program may have been influential in reducing the indemnity costs associated with losses or the type of losses that may have been incurred within these same businesses. Given the program is funded with state dollars, it would seem beneficial to evaluate the extent to which this investment has impacted losses within a specific industry. Since hazards within the

in the grant program by Minnesota Contractors is favorable, this would seem an appropriate classification by which to conduct additional research. This research could identify if the State of Minnesota has made a viable investment of its dollars by investing in the safety grant program and reducing work related losses within the state's construction industry. In addition, it could determine if those contractors that are participating in the grant program are noticing a change within their company's safety culture and if they are satisfied with the grant program in general.

#### *Purpose of the Study*

The purpose of this study was to evaluate the impact the Minnesota Safety Grant Program has had towards the reduction of construction workplace accidents/injuries and to evaluate the overall satisfaction of those construction businesses utilizing the grant program.

#### *Research Questions*

In an effort to determine the effectiveness of the Minnesota Safety Hazard Abatement Grant Program within the construction industry, the following questions were studied:

1. Are those contractors that have participated in the MN Safety Grant Program satisfied with the program overall (application, timeliness of grant process)?
2. Do the contractors feel the utilization of a MN Safety Grant has been instrumental in helping their businesses achieve an improvement in their safety culture?
3. Have contractors that have utilized the MN Safety Grant Program been effective at reducing the number of workplace accidents/injuries?
4. When comparing data associated with lost workdays and indemnity dollars paid, do those contractors utilizing the MN Safety Grant Program perform better than those contractors not utilizing the program?

5. Is there any correlation between the type of equipment/property purchased with grant monies and a reduction in the type of losses that may have been incurred?

### *Significance of the Study*

The results of this study are intended to provide assistance to Minnesota DLI relating to the Safety Grant Program in several areas. It is believed that information obtained during the research process may be helpful towards improving the grant application process, evaluating adequacy and allocation of funds, and determining eligibility of grant recipients. Depending upon the results of the research, some data may be beneficial in future marketing of the Safety Grant Program. Whereas the continuation of the Safety Grant Program does not rely on the information obtained in this study, it is hopeful the results may provide information that could be attributed to its growth.

### *Limitations to the Study*

As with all research, there are limitations to this study that may slightly impact the overall results of the study.

1. When performing comparison of losses for those contractors receiving grants to those not receiving grants, the percentage of grant participants in any given fiscal year was less than 0.2% of the total number of contractors performing work in the state of Minnesota. Due to this low percentage of grant participants overall, it was deemed unnecessary and too labor intensive to eliminate the grant participants from the baseline data. Instead all contractors operating under specific Standard Industrial Classifications within the state of Minnesota were pooled to create the base measurement. This group included previous grant recipients.

2. When performing data analysis of workers' compensation claims during pre and post grant years, the size of the employer (or the number of employees) during each timeframe was not considered a factor but may have had a small impact relating to the number of claims.
3. Contractors receiving grants in fiscal year 2004 were removed from the statistical analyses portion of the research. This was due to the duration of what had been determined as the post-grant time frame. Available data during this timeframe may not be current for 2004 grant recipients due to lag in reporting of workers' compensation claims. Although this is a small number of contractors, losses incurred by this group may eventually have an impact on the overall results if the number of claims is extensive.
4. There were a few contractors that received more than one grant during the duration of the study. These contractors were also removed from the statistical analysis of incurred losses due to overlap of pre and post grant information. If the multiple grants were received in consecutive years, the post grant data for the first grant year would be double counted as pre grant loss data for the second grant year.
5. An unknown factor relating to safety culture within the study group was whether or not the company had a full time position within the organization dedicated strictly to safety and loss prevention. This factor may have had an impact relating to losses and reduction in lost workdays if the organization is proactive with loss control efforts and early return to work programs.

#### *Definitions of Terms*

*Federal employer identification number (FEIN).* Also known as a Federal Tax Identification Number, is a nine-digit number that the IRS assigns to business entities. The IRS uses this number to identify taxpayers that are required to file various business tax returns. EINS are used by employers, sole proprietors, corporations, partnerships,

non-profit organizations, trusts and estates, government agencies, certain individuals and other business entities (“Frequently Asked Questions: What Is A Tax ID or EIN?,” 2005).

*Indemnity.* Indemnity is referred to as the amount paid to an individual after experiencing an injury. The indemnity payment would be enough to restore the injured person back to a “state of wholeness”(Wise Geek, *What is indemnity?* n. d.). In the case of workers’ compensation, indemnity payments generally consist of wage-loss benefits paid to an injured employee (*Minnesota workers’ compensation system employee information sheet.* n. d.) There is a three-calendar-day waiting period before these benefits start and they must be paid within 14 days of the date the employer know about the work injury and lost wages.

*Standard Industrial Classification (SIC).* The SIC was developed for use in the classification of establishments by type of activity in which they are engaged; for purposes of facilitating the collection, tabulation, presentation, and analysis of data relating to establishments; and for promoting uniformity and comparability in the government, state agencies, trade associations, and private research organizations. (Department of Labor, *Standard Industrial Classification Manual*, 1987, p. 11).

*Temporary total disability (TTD).* TTD is the period of treatment and healing before it can be determined whether or not there is any permanent disability. Almost all worker’s compensation cases initially are for temporary total disability which covers the period

immediately after injury (“Weekly Benefits Paid for Temporary and Permanent Disability”, 2005).

*Unemployment insurance (UI) employer account.* A UI employer account is assigned to every employer who is required to report wages paid to their employees. If any of their employees become separated from employment, and collect unemployment benefits, the benefits are charged to the UI Employer Account. The account also reflects the UI taxes paid by the employer (Unemployment Insurance Minnesota, 2005).

## Chapter II: Literature Review

### *What is OSHA?*

The Occupational Safety and Health Administration (OSHA) was established in 1971 as the regulatory arm of the Occupational Safety and Health Act (OSH Act) of 1970. (Occupational Safety & Health Administration, *OSHA's 30<sup>th</sup> Anniversary*. 2001) The OSH Act was strongly supported by New Jersey Senator Harrison A. Williams Jr., and by House Representative William A. Steiger and is also known as the Williams-Steiger Act. The tireless efforts of these two men were in response to the very tumultuous times of the late 60's. During this decade numerous efforts were being made to improve women's rights and civil rights. It seems only appropriate that the rights of workers to be provided a safe and healthy work environment should become a vital part of reform for that time. In this decade alone disabling injuries had increase by 20%, and the rate of fatalities among American workers was estimated at 14,000 annually.

Signed into law on December 29, 1970, by President Richard M. Nixon, The OSH Act was responsible for creation of three permanent agencies: the Occupational Safety and Health Administration, the National Institute for Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Review Commission (OSHRC) (OSHA, *OSHA's 30<sup>th</sup> Anniversary*, 2001). These three agencies were designed to enforce workplace safety and health standards, conduct occupational safety and health research, and to adjudicate enforcement actions challenged by employers, respectively. Since the early inception of OSHA, the efforts of these organizations has helped to reduce worker fatalities by more than 60 percent (Occupational Safety & Health Administration, *OSHA Facts – December 2004, 2004*) This is considered no small feat considering the significant growth in the American workforce from 56 million workers at 3.5 million sites in the early 70's to 115 million workers at 7.2 million sites present day.

### *OSHA's Mission*

The specific mission of OSHA is “...to assure the safety and health of America’s workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health” (Occupational Safety & Health Administration, *OSHA's Mission*, n.d.). As such, OSHA has developed several programs under which this mission has been confirmed. The Alliance Program allows employers, labor unions, professional and educational groups, and other government agencies to partner with OSHA to prevent injuries and illnesses in the workplace (OSHA, *OSHA Facts*, 2004). This program addresses written goals for training, outreach and dialog on workplace safety and health. The Strategic Partnership Program is another OSHA initiative that offers long-term relationships with employers and employee groups to improve safety and health in the workplace through elimination of hazards and implementation of an effective safety and health program. The Safety and Health Achievement Recognition Program (SHARP) provides incentives to employers to “develop, implement and continuously improve effective safety and health programs at their worksites” (p. 2). The Voluntary Protection Program (VPP) is considered to be OSHA’s “premier partnership”, consisting of an elite group of worksites whose injury and illness rates are more than 50% below averages for their industries. The last program to be mentioned is the Susan G. Harwood Training Grant Program, which will be discussed in greater detail later in this chapter.

### *Federal OSHA vs. State OSHA*

Part of the OSH Act of 1970 provides individual states with opportunity to develop and operate their own safety and health programs (Occupational Safety & Health Administration, *Frequently asked questions about state occupational safety and health plans*, n. d). Section 18 of



the OSHA Act requires that states must set safety and health standards that are at least as effective as those set by federal standards. In addition to following federal OSHA standards, states operating under state-run OSHA plans have the opportunity to develop more stringent standards covering hazards that may not be addressed in the federal standards. Federal OSHA approves and monitors all state plans and provides up to 50% of the approved state plan's operating costs. Currently there are 26 states operating under state run OSHA programs, one of which is the state of Minnesota. State-run OSHA programs also have many of the same partnership programs as found at the federal level, including VPP, SHARP and occasionally safety grant programs.

#### *Minnesota Safety Grant Program*

The Minnesota Safety Hazard Abatement Grant Program (safety grant program or grant program) was developed in 1992 by the Minnesota State Legislature and was “established to help businesses in Minnesota purchase new equipment and make other physical improvements to enhance workplace safety conditions” (Kipman et al., 1999, p. iii). Since the implementation of the grant program, only one study has been performed to evaluate its results. The research conducted in 1997-1999, was not specific to the grant program; it focused on results from all programs offered through Minnesota Workplace Safety Consultation including the Minnesota Safety and Health Achievement Recognition Program (MNSHARP), Labor-Management Safety Committees, LogSafe Program, Workplace Violence Program and the Safety Grant Program. However, only information pertaining to the grant program was officially published. The focus of the current research is strictly on the Safety Hazard Abatement Grant Program. Utilizing information obtained relating to workers' compensation losses of Minnesota contractors

receiving grants from 2000 through 2004, this study is intended to provide information that will determine if the grant program is a worthy investment of state funds.

#### *Summary of the Previous Research*

Beginning in 1997, the Minnesota Department of Labor and Industry (DLI) Research and Statistics unit and Workplace Safety Consultation (WSC) joined forces to create a survey tool to evaluate WSC safety consultation programs (Kipman et al., 1999). The survey, known as the Minnesota Workplace Safety Practices (MWSP), was designed to collect information on safety practices within Minnesota businesses. The MWSP survey consisted of two parts. Part one addressed the general experiences with WSC and other safety consultation services, and also asked questions relating to general work site conditions and safety and health practices of the company. Part two of the survey was more specific, with questions relating to WSC programs such as the Minnesota Safety and Health Achievement Recognition Program (MNSHARP), LogSafe Program, Workplace Violence Program, Labor-Management Safety Committees, and, of course, the Safety Hazard Abatement Grant Program.

Many of the questions presented in the MWSP survey were similar in nature to those presented in the current research. The purpose of the MWSP survey was to obtain information about the general work site characteristics of the grant participants and their experiences relating to use of WSC programs (Kipman et al., 1999). As with the current research, questions pertaining to improvements in business operations, possible reductions in lost work days, improvements in safety, and satisfaction relating to the timeliness of the grant program were presented. In addition to the survey questions presented in the MWSP survey, respondents were also asked to provide WSC with data pertaining to accidents/injuries within their business for the years 1993 to 1997.

For the safety grant portion of the study, 236 MWSP surveys were mailed to all Minnesota businesses that received grants during 1995 to 1997 (Kipman et al., 1999). Thirty-one of the grants issued during this timeframe were issued to construction businesses. Of the 121 respondents to the survey, 17 were from the construction industry. The total group of respondents represented a similar industry mix as the overall distribution of grant recipients.

#### *Results of Part One of the MWSP Survey*

Part one of the MWSP survey requested data relating to injuries within the workplace for the recording years of 1993 to 1997 (Kipman et al., 1999). This information (generally recorded on the OSHA 200 Form) was analyzed to determine outcomes of the grant program based on injuries and workers' compensation costs of the grant recipients. Based on the information provided by the employers, it was determined that the average number of serious injuries (those involving amputation, loss of sight, electrocution, falls, crushing, head injuries or other traumatic injuries) was reduced by 47% from the year prior to receiving the grant. In addition, the number of lost work days one year after receipt of a grant was also reduced to 45 lost workdays (per 100 full time equivalent workers) from 58 in the year prior to the grant. Workers' compensation costs also experienced a decline during the 1995 to 1997 study years, showing \$1.48 in premium for every \$100 in payroll in 1995 and \$0.96 per every \$100 in payroll in 1997. Based on this information, it was determined that results for this portion of the study would remain favorable due to fewer injuries and lost work days, which would in turn affect future workers' compensation insurance premiums.

#### *Results of Part Two of the MWSP Survey*

As with the results of the current contractor's survey, responses from part two of the MWSP survey were subjective. Responses to those questions in the MWSP survey that were

similar to those in the contractor's survey were found to reflect favorably on the grant program. For example, the previous research indicated that 49% of the respondents believed that their company had experienced a reduction in lost work days after receiving a safety grant (Kipman et al., 1999). When asked about an increase in productivity, 48% believed they experienced an increase in productivity and another 40% of the respondents felt their safety-related costs decreased since receiving the grant.

Overall customer satisfaction rating among grant recipients from 1995 to 1997 also reflected positive results for the grant program (Kipman et al., 1999). The application process received an 89% approval rating; the timeliness of the grant process had 75% of the respondents satisfied, and satisfaction of the grant process overall reflected a 90% approval rating.

The results from part two of the previous research did reflect quite well on the safety grant program overall. However, as with all programs, there was one area that reflected lower satisfaction ratings by comparison. The timeliness of the grant process had the lowest satisfaction rating with the previously mentioned 75% of the respondents satisfied with this portion of the program (Kipman et al., 1999). The notable dissatisfaction within this area was most prominently displayed in the responses from those companies in the finance and service industries. It was noted that 18% of the companies in these particular industries were dissatisfied with the time commitment associated with the application process.

Despite the one area of discontent in the subject of timeliness in the application process, the overall results of the research conducted in 1997-1999 reflected very favorably of the grant program. The premise under which the Minnesota Safety Grant Program operates provides a unique opportunity to the state to obtain tangible data relating to the success or failure of the program. Analysis of not only subjective data, but also objective data such as lost work days and

data pertaining to workers' compensation can be used to develop solid conclusions as to the feasibility of the program. The results may prove to be good indicators that such a unique approach to safety grants should be considered by other organizations.

#### *Other Types of Safety Grants*

While researching the different types of safety grants that may be available, it was discovered that the Minnesota Safety Grant Program is quite unique in nature. It is believed it is the only grant program in the nation that allows for the purchase of equipment or real property to assist employers with the abatement of safety hazards. Other state operated grant programs, and even the federally operated Susan G. Harwood Grants appear to focus primarily on training and development.

One grant available for training at the federal level is the Susan G. Harwood Training Grant. The federal branch of the Occupational Safety and Health Administration (OSHA) manages the program, awarding grants to nonprofit organizations, including community and faith-based organizations (OSHA, *Susan G. Harwood training grant program*, 2005). Under this program OSHA pre-determines the safety and health topics for which training grants will be issued. A national competition is then held to determine recipients in two categories, target topic training and training materials development. Grants awarded in these categories develop the training and provide workers to present the programs (target topic), and develop programs that are classroom ready for use in the classroom, on the worksite, or as self-study (training materials development).

Other grant opportunities have been found at the state level, with only three states offering any form of safety grant assistance. Two of the three state-run OSHA programs offer grant assistance for development of training. The state of Oregon offers a training and education

educational institution can develop an education program to be used by an entire industry or specific work process to reduce or eliminate hazards (Oregon [OR] OSHA, n. d.). The grants issued under this specific grant program are not to be used for individual companies to provide training for their employees. As with the federal program, OR OSHA also regulates the program and provides potential applicants with specific topics under which training can be developed.

The second state to offer a safety grant program is Michigan. The Michigan Occupational Safety and Health Administration (MI OSHA), refers to their grants as Consultation Education and Training (CET) Grants (Michigan Department of Labor & Economic Growth, 2005). CET grants are awarded on an annual basis for development and implementation of safety and health training that supplements the current CET activities. Non-profit groups, management/employer groups and labor/employee groups are all eligible to apply for training groups within this state.

The last state to offer a grant assistance program is the state of Minnesota. It has already been determined that Minnesota's grant program is unique, providing employers grant funds with which to purchase real property or equipment. The state does however have strict training guidelines that must be associated with equipment purchases (Mattila, 2005). The manufacturer of the equipment or the equipment dealer must provide the equipment training. Information pertaining to this training is required as part of the grant application process. One other training option exists within the Minnesota grant program where employers may apply for grant funds to provide additional safety training to employees (i.e. OSHA 10 and 30 hour safety programs) through technical colleges or other professional organizations. What the Minnesota grant program does not do is provide funds for development of training programs. This is due in part to the numerous forms of training venues available.

### *The Importance of a Safety Culture*

The utilization of training and grant opportunities can be considered two powerful elements in helping to create a strong safety culture. OSHA observations indicate that a strong safety culture can have the greatest impact on loss reduction in any industry (OSHA, *Creating a Safety Culture*, n.d.). In general, companies with a strong safety culture experience lower accident rates, low turn-over and absenteeism, high productivity, and fewer at-risk behaviors. Support by top management is viewed as the most critical element in the creation of a safety culture. Through involvement in OSHA partnerships and training opportunities through grants or other avenues, employers are able to demonstrate the importance of the safety element to their business. The personal and financial commitment displayed by management often leads the organization to making safety everyone's responsibility.

### *Summary*

The review of other state and federal safety grant programs indicates a strong focus on training development. While the State of Minnesota does not condone the importance of sufficient training in the workplace, its focus on providing Minnesota employers with a means by which to improve safety conditions is exemplary. The results of previous research indicate this approach to be successful through fewer lost work days and reduction in costs associated with workers' compensation premiums. The present study makes an effort to determine the continued success of the program by evaluating similar data in a more definitive study group.

### Chapter III: Methodology

The purpose of this study is to evaluate the impact the Minnesota Safety Grant Program has had towards the reduction of workplace accident/injuries in the construction industry and to evaluate the overall satisfaction of those construction businesses utilizing the grant program. This chapter will discuss the methods used for selecting the study group, determining approval rating of the grant program, and methods for obtaining and analyzing data relating to losses within the study group.

#### *Subject Selection and Description*

In order to maintain manageability of data and information, two variables were used in the selection of the study group. The first variable was to include only grants that were issued during fiscal years 2000 through 2004, with the fiscal year dates consisting of July 1 through June 30. The second variable limited the size of the study group further by selecting grant recipients operating under Standard Industrial Classifications (SIC's) beginning with 15, 16, and 17. The SIC's chosen relate specifically to the construction industry.

According to the *Standard Industrial Classification Manual* (1987), group 15 includes “general contractors and operative builders engaged in the construction of residential, farm, industrial, commercial, or other buildings” (p. 55). Group 16 of the manual applies to heavy construction contractors (other than building construction). This group includes those that build “highway and streets, bridges, sewers, railroads, irrigation projects, flood control projects and marine construction, and special trade contractors...not performed on buildings or building related projects” (p. 58). An example of some special trade contractors in this group includes grading and excavation, trenching operations, and highway and street construction. The last group, beginning with 17, consists primarily of special trade contractors. The activities



performed by businesses operating under this SIC can include painting, electrical work, carpentry work, plumbing, heating, air-conditioning, roofing and sheet metal work.

During the time frame specified, safety grants were issued to 114 different contractors operating under the specified SIC's beginning with 15, 16, or 17. Of the 114 original contractors, 11 of those received one or more additional grants during the duration of the study, for a total of 15 additional grants. This brings the total number of grants issued to the study group to 129 during the five years studied. Those receiving more than one safety grant had received multiple grants prior to new grant eligibility requirements set forth in 2002. The new guidelines limit grant eligibility to once every two years. It is important to mention those receiving multiple grants, as it will reduce the overall size of the study group when performing statistical analysis of loss data.

The 114 contractors receiving grants in the years 2000 through 2004 were designated as the study group. Phase one of the data gathering process consisted of mailing surveys to all 114 contractors. The details of the survey will be discussed later in this chapter. Phase two of the data gathering process began with the researcher developing a list of the contractors' Unemployment Insurance (UI) Employer Account numbers and also Federal Employer Identification Numbers (FEIN). This information was obtained from various databanks at the DLI. The list of contractors and their corresponding UI and FEIN's was then provided to the DLI Research and Statistics Department for the purpose of obtaining data relating to pre and post grant losses within the group. The Research and Statistics Department then developed spreadsheets with appropriate loss data from which loss analysis was performed. Additional information pertaining to the spreadsheets will also be provided later in this chapter.

In order to effectively measure results of the information provided in the spreadsheets, a baseline study group was needed. The Department of Labor and Industry Research and Statistics Department provided the baseline study group data, consisting of all contractors in the state of Minnesota operating under the SIC's of 15, 16 and 17 during the fiscal years 2000 through 2004. This baseline group of contractors was also inclusive of the contractors selected as the study group. This is due to the fact that the State of Minnesota in fiscal year 2004 alone had 18,274 contractors conducting business ("Quarterly Census Employment and Wages," 2005) and the size of the study group for any given year was no more than 34 contractors. The percentage of study group participants found within the baseline group was estimated to be no greater than 0.2% of the baseline group for any given study year. The inclusion of the study group participants with the baseline group was therefore not considered to have a significant impact on baseline data.

#### *Instrumentation*

Two phases of data gathering were performed for this study. The first phase of data gathering consisted of the distribution of a satisfaction survey and a form of implied consent to participate in approved research. The survey was developed based on previous research of the safety grant program performed in 1999 (Kipman et al., 1999). The intent of the previous research was to evaluate customer satisfaction of the grant program in general. The focus of the current survey was to also evaluate customer satisfaction, however questions relating to results due to use of the grant program were also added. Based on a Likert Scale system, contractors were asked questions relating to the grant program, and asked to respond in a five point range from "strongly agree" to "strongly disagree," with "no opinion" as a median point. In addition to the Likert Scale questions, there were three additional questions pertaining to why the company

applied for a safety grant, if the organization was union or non-union and if the general area of work was within the Twin Cities Metro or in outlying areas. The survey consisted of 12 total questions and can be found in Appendix A.

The second instrument used to gather data for phase two was the spreadsheets that had been provided by DLI's Research and Statistics Department. The spreadsheets consisted of baseline study group information detailing the mean TTD weeks and mean total indemnity payments for each of the grant years studied. In addition to the baseline data spreadsheet, other spreadsheets providing information pertaining to the study group's losses were developed. When developing the spreadsheets for the study group data, it was deemed necessary to remove several subjects from the initial study group of 114 contractors.

The first set of subjects removed from this portion of the study was the group receiving multiple grants. This group consisted of 11 contractors, each of whom received an initial grant as well as one or more of the 15 multiple grants issued. Their removal from the study was necessary due to possible overlap of data between fiscal years. For example, if the contractor received grant awards in two consecutive fiscal years, the post grant loss information from the first grant year would be double counted as pre grant loss information from the second grant year. Pre grant timeframe was considered to be one full year prior to the first day of the month in the year in which the grant was issued. Post grant timeframe was determined to be one full year after the first day of the month in the year the grant was issued.

The second set of subjects to be removed from this portion of research, were the 19 contractors receiving grants in fiscal year 2004. Due to the potential for lag time reporting of workers' compensation losses, it is possible that some claims may not yet be established within the workers compensation database and may therefore not accurately depict losses for the post

grant year. Once all variables had been removed, the study group for the second portion of research had been reduced to 84 contractors.

The data from the new list of 84 contractors was organized into three spreadsheets. The first spreadsheet detailed the number of losses each of the study group contractors had experienced one year prior to receipt of a grant and the number of losses sustained one year after grant acceptance. The second spreadsheet detailed the mean number of TTD weeks and mean total indemnity paid by the study group during the duration of the study. The final spreadsheet outlined the type of injuries (i.e. fall related, strains, contact, or other) the study group had sustained in both pre and post grant years. This information was provided by DLI's Research and Statistics Department, as the researcher did not have access to the required databases needed to collect the information.

#### *Data Collection Procedures*

The first phase of research began with the selection of the study group. Once the study group was selected, a survey and a form of implied consent to participate in approved research were mailed to each of the 114 contractors. In addition to the survey and consent forms, a cover letter describing the study (see Appendix B) and a self-addressed stamped envelope were provided for return of the surveys. In order to maintain anonymity of the survey results participants were informed to not include a return address or business card with the survey. Of the 114 surveys that were mailed, there were 69 respondents with 22 surveys returned as "undeliverable" by the U.S. Postal Service. The 22 undeliverable surveys were removed from the study group, resulting in reduction of the survey study group to 92 contractors.

The second phase of data gathering was objective in nature and pertained to the study of actual pre and post grant accident data. Spreadsheet data provided by the DLI Statistics and

Research Department was analyzed to determine if those contractors utilizing the grant program had been successful in reducing the number of workplace accidents/injuries and lost workdays upon receipt of a grant award. This data was also used to determine if those contractors receiving grants had fewer lost workdays and lower indemnity costs than those not using the grant program. Other information relating to the types of injuries that occurred within the study group was also analyzed to determine if a reduction in specific types of losses correlated with items purchased under the grant agreements.

#### *Data Analysis – Phase One*

Data analysis for the first phase of research was quite simple in nature, calculating percentages of responses for each of the questions addressed in the contractors' survey. As previously mentioned, a survey and implied consent form were mailed to the initial study group of 114 contractors. Once the 22 undeliverable surveys were removed from the study group, it was determined that 92 surveys were successfully mailed. Of this number, 69 were returned complete, accounting for a response rate of 75%.

Results for the 69 completed surveys were tabulated to show the number of frequencies in response to each of the survey questions. Nine of the survey questions posed to the study group were based on Likert Scale responses as previously described. For each of the nine Likert Scale questions, the number of responses in each category was marked and a percentage of each response was calculated. Frequencies in responses for the three remaining questions were also tabulated, however these response were not based on a Likert Scale. A percentage of each response was also calculated for the three final questions of the survey.

As formerly mentioned, there were two primary categories of questions presented in the contractors' survey. Questions one, seven, eight, and nine all relate to the implementation and

overall satisfaction of the grant program. These questions were asked to determine if there might be need to improve the grant application process as viewed by those utilizing the program. The results of these questions were tabulated to determine customer satisfaction information as it pertains to use of the grant program.

The second set of questions in the contractors' survey consisted of questions two, three, four, five and six and were used to evaluate potential benefits due to use of the grant program. The questions focused on reduction of recordable injuries, reduction of lost work days, possible decrease in operating expenses, increases in productivity, and improvements in the company's safety culture. These questions, in a manner of speaking, were a subjective form of the second phase of research. They were analyzed to determine if contractors viewed their companies as benefiting from the grant program by having fewer losses after receiving a safety grant. Actual post grant losses were tabulated in phase two of the research.

The three remaining questions in the survey, questions 10, 11, and 12, were added to provide demographic data, and to determine what may have prompted the contractors to seek out grant assistance. No further evaluation of the data provided in these questions was performed for this research.

#### *Data Analysis – Phase Two*

The second phase of research involved statistical analyses of actual losses incurred, adding a more objective element of research to the study. Again the initial study group of 114 contractors was reduced due to multiple grant recipients and the possibility of overlapping data, and due to the possibility of lag time reporting in workers' compensation claims. The study group for the statistical portion of research was 84 contractors. This phase of research focused more extensively on pre grant and post grant losses of the grant recipients. As previously

mentioned, the pre grant time frame was determined to be one year prior to the first day of the month in which the grant was received and post grant was that being one year after the first day of the month in which the grant was received.

Data pertaining to losses within the baseline group and study group was collected using the Statistical Program for Social Sciences (SPSS), version 13, 2004. The results of this portion of data gathering focused primarily on the number of actual losses, lost workdays, and total indemnity payments for the contractors in the baseline and study groups. Due to the simple nature of comparison of losses of the study group to the mean losses of the baseline group, it was determined that additional research tests were not needed for this particular study.

Using SPSS, the mean Temporary Total Disability (TTD) weeks and the mean total indemnity paid was calculated for the baseline group and DLI's Research and Statistics Unit developed a spreadsheet containing the data. Once these numbers were determined for the baseline, the mean data for the study group was also calculated and similar spreadsheets were created. Comparison of the spreadsheets data containing mean TTD and indemnity payments for both groups was then made to determine if those businesses receiving the safety grant had a lower number of TTD weeks and lower indemnity payments than those businesses not utilizing the safety grant program. Once the comparison to the baseline data was complete, the pre-grant and post grant TTD weeks and indemnity paid of the study group alone were analyzed. This was to determine if there was a reduction in lost workdays and indemnity payments after receiving a safety grant award.

In addition to comparison of TTD and indemnity data, the actual number of pre and post grant losses within the study group was analyzed. This data had also been organized into spreadsheet form. The comparison of the actual number of losses in both the pre grant and post

grant year was made to determine if the number of losses might have been reduced after receipt of a grant award. Along with the analysis of the number of losses, the type of losses was also analyzed from data provided in the final spreadsheet. This was to evaluate whether or not any loss reduction of the study group correlated with the type of equipment that was being purchased under the grant agreements. Loss types were broken down into four categories: falls, strains, contact, and all other. Falls included both falls from the same level and falls from heights. Strains included sprains and strains due to lifting or twisting. Contact included struck by, struck against, caught in, and crushed (this category would be inclusive of trench related incidents). The last category of all other, included cuts, eye injuries, and other miscellaneous injuries.

#### *Limitations to the Study*

As with all research, this study has limitations that may slightly impact the overall results of the data.

1. The number of employees within each of the study group participants was not evaluated. This could potentially have an impact if post grant data shows a reduction in losses. The reduction in losses could be the result of having fewer employees in the post grant year versus the number of employees during the pre grant year

2. It was not determined if those participating in the safety grant program had a full time position within their organization dedicated strictly to safety and loss prevention. This element could have an impact on TTD or indemnity data since most companies with adequately funded safety programs (i.e. a full time safety position), generally are very proactive with return to work programs, thereby reducing the number of TTD weeks and indemnity payments.

3. The actual losses for those contractors obtaining grant awards in 2004 could not at this time be calculated due the possibility of lag time reporting of workers' compensation claims.



Unknown data from this time frame may have an impact on the overall results of the research if, at a later date, it was determined that losses for this fiscal year were exceptionally high.

4. The results of the contractors' survey are subjective. Each of those surveyed in the study group may have differing views as to what their expectations of the grant program were or if the application and award process can be considered timely.

## Chapter IV: Results

### *Introduction*

The Minnesota Safety Hazard Abatement Grant has been in existence since 1992. Since that time only one study has been performed to determine if the program has met the expectations of the program participants. The study performed in 1999 however, did not determine if the grant program has been successful in helping to reduce the number of lost work days or indemnity costs associated with those losses. The purpose of this study was to determine customer satisfaction of those contractors utilizing the grant program and to determine if the Minnesota Safety Grant Program has been successful in helping contractors reduce the number of accidents/injuries they may experience.

### *Phase One Results*

*Group one survey questions.* Phase one of this study consisted of a contractor's survey that was distributed to the members of the study group. The first group of survey questions consisted of numbers one, seven, eight and nine. These questions all pertained to the implementation and overall satisfaction of the grant program and will be used to answer the first research question:

*1. Are those contractors that have participated in the MN Safety Grant Program satisfied with the program overall (application, timeliness of grant process)?*

Responses for each of the above mentioned four questions show favorable results that the majority of contractors are satisfied with the overall use of the safety grant program. There were 69 respondents to the 92 mailed surveys. Figure one shows the questions as presented in the survey, with the percentage of responses for each of the questions.

*Table 1**Results of Survey Questions Pertaining to Overall Satisfaction of the MN Safety Grant Program.*

Question	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1. The Safety Grant Program met my company's expectations.	58%	41%	1%	0%	0%
7. The grant application process was easy to complete.	10%	55%	6%	26%	3%
8. The timeliness of the grant process was within a reasonable time frame.	17%	55%	16%	12%	0%
9. My company is satisfied with the overall results of the Safety Grant Program.	45%	49%	6%	0%	0%

Although questions seven and eight had some unfavorable results, it can be determined by observing the high percentages of favorable responses that the safety grant program overall has a very high satisfaction rating among the grant program participants. Unfavorable responses relating to ease of application completion and timeliness of the grant (questions seven and eight respectively) show areas of the program that may be considered for future improvement.

*Group two survey questions.* This group of survey questions, numbers two, three, four, five, and six, were developed to evaluate how contractors viewed the potential benefits they may have experienced due to utilizing the grant program. This set of survey questions focused on items such as reduction of recordable incidents, reduction in lost work days, decreases in

operating costs, and increases in productivity. It is believed these items all relate to the safety culture of business operations and may be helpful in answering the second research question:

*2. Do the contractors feel the utilization of a MN Safety Grant has been instrumental in helping their businesses achieve an improvement in their safety culture?*

Figure two shows the percentages of responses to those questions that pertained to benefits of the safety grant program and the impact to the company's safety culture. Although the responses were more varied than those questions relating to satisfaction of the program, the results overall are still quite favorable to a positive safety culture within the study group.

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*Table 2*

*Results of Survey Questions Pertaining to the Benefits Associated with Utilization of the MN Safety Grant Program*

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Question	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
2. My company has experienced a decrease in the number of OSHA recordable incidents since our participation in the Safety Grant Program.	19%	39%	28%	14%	0%
3. Through the use of the Safety Grant Program, my company has been successful in reducing our number of lost workdays.	23%	41%	28%	8%	0%
4. As a result of the Safety Grant Program, my company has experienced a decrease in safety related operating costs (i.e. costs	26%	39%	25%	10%	0%

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relating to implementation of a safety

program, workers' compensation costs, etc.)

5. Utilization of the Safety Grant Program	40%	49%	10%	1%	0%
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has impacted my company's productivity in a positive manner.

6. The safety culture at my company's work	42%	45%	7%	6%	0%
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sites has improved as a result of the grant we received.

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As Table 2 indicates, a high percentage of respondents believe the grant program has been beneficial in helping them to improve safety culture within their organization. It is believed that many of the contractors may not view items such as a decrease in OSHA recordable incidents and increase in productivity as being part of an improvement to the culture of their organization. These questions however (questions two and five) definitely show that changes are taking place within the organization for the contractors to respond in such a manner that indicates reduction in recordable injuries and increases in productivity. The responses to questions three and four also reflect well of changes within the culture of the business. By reducing lost work days and lowering operating costs, the company has obviously become cognizant of the need to make improvements in these areas, possibly unknowingly improving the culture of safety awareness within their business.

#### *Demographic Data*

The remaining three questions of the contractors' survey were presented for determining the demographics of the study group, and to determine what the primary reason for participation

in the grant program might be. Although this data was not analyzed to any extent other than to determine the percentage of responses, the data is presented in Tables 3 and 4 for informational purposes.

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Table 3

*Results of Survey Question 10: Reasons Contractors Applied for MN Safety Grant.*

Question	To reduce accidents and costs of accidents	To eliminate hazards	To improve productivity/ morale	To comply with OSHA standards.
10. My company applied for a MN OSHA Safety Grant for the following reason (choose only one)	42%	38%	11%	9%

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Table 4

*Results of Survey Questions 11 and 12: Demographics of Respondents*

Primarily Union Labor Force	Primarily Non- Union Labor Force	Work is Primarily Performed in Twin Cities Metro Area	Work is Primarily Performed Outside Twin Cities Metro Area
39%	61%	35%	65%

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*Phase Two Results*

The second phase of data gathering pertained to analyses of actual pre and post grant accident data. This data was intended to determine if those contractors utilizing the grant

program had shown improvement after receiving a safety grant in areas relating to reduction of accidents/injuries, reduction of lost work days, and a reduction in the amount of indemnity costs associated with workers compensation claims. Results of this data can first be analyzed by answering research question number three:

*3. Have contractors that have utilized the MN Safety Grant Program been effective at reducing the number of workplace accidents/injuries?*

According to the data relating to workers' compensation claims among the study group, it can be determined there was a drop in workers' compensation claims when comparing pre grant data to post grant data. Figure five shows the number of claims within the study group of 84 contractors. Although the grant year for each contractor can differ, data was tabulated in the same manner based on the date of receipt of the grant.

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Table 5

*The Number of Pre and Post Grant Claims Among the Study Group of 84 Contractors*

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Number of Pre-Grant Accident/Injury Claims	Number of Post-Grant Accident/Injury Claims
145	103

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As the data indicates, there was a total reduction in workers compensation claims of 29% one year after contractors had received a safety grant award. This percentage is a good indication that the safety grant program has contributed significantly to the reduction of accidents/injuries within those companies utilizing the grant program.

*Comparison of loss data.*

In addition to determining if there was a reduction in losses after receiving a safety grant, it was also deemed beneficial to determine if those contractors utilizing the grant program had

fewer lost work days and lower indemnity costs when compared to other contractors not utilizing the grant program. This information can best be presented by answering research question four:

*4. When comparing data associated with lost work days and indemnity dollars paid, do those contractors utilizing the MN Safety Grant Program perform better than those contractors not utilizing the program?*

The data provided by the Research and Statistics Department within DLI is shown in Table 6 below. This data represents average TTD weeks and indemnity costs of the baseline group and provides a means of comparison to the same data within the designated study group.

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Table 6

*Mean Data of Baseline Group – TTD Weeks and Indemnity Paid*

Fiscal Year	Mean TTD Weeks	Mean Indemnity Paid
2000	11.9	\$12,324.65
2001	18.5	\$13,526.05
2002	14.3	\$15,213.24
2003	16.5	\$18,329.64
Average Totals	15.3	\$14,848.40

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When using the above data as a basis for comparison, the study group overall shows both lower TTD weeks and lower indemnity costs in both pre grant and post grant data. However, the post grant data reflects very positively towards the safety grant program as it reflects considerably lower TTD weeks and indemnity payments. Table 7 below provides data relating to the pre grant and post grant TTD weeks and indemnity paid for the study group, and it provides information as to the extent of the reduction in these areas of loss data.



Table 7

*Mean Data of Study Group (TTD Weeks and Indemnity) and Percentages of Reduction in Comparison to Baseline Data.*

	Mean TTD Weeks	Mean Indemnity Paid
Pre-Grant Data	10.2	\$13,529.80
Post-Grant Data	8.9	\$12,970.80
Baseline Data (from Table 6)	15.3	\$14,484.40
% Reduction to Post-Grant	42%	10%

The data provided by DLI Research and Statistics Department was adjusted for wage growth and for the effect of an October 2000 maximum indemnity benefit increase. All of the claims analyzed reflect indemnity payment, as they would have been under the current law. The results are very favorable to those utilizing the grant program, reflecting a 42% reduction in TTD weeks when compared to those not utilizing the grant program. The reduction in indemnity payments is somewhat smaller by comparison but still reflects a favorable reduction of 10%. The results of this data indicates that those contractors utilizing the safety grant program have benefited significantly when compared to those not using the program through reduced TTD weeks and lower indemnity payments.

*Types of losses.*

It has been determined that the safety grant program has indeed been successful at helping contractors to reduce their losses. The types of losses experienced with the study group was also studied, providing pre grant and post grant data for four categories of injury types: falls, strains, contact (including struck by or against, caught in or crushed) and all other injuries. This information was analyzed to determine if the equipment purchased under the grant program has

had a direct effect on the types of injuries being incurred by the study group. The last research question addresses the comparison of loss type and is worded as such:

*5. Is there any correlation between the type of equipment/property purchased with grant monies and a reduction in the type of losses that may have been incurred?*

When looking at grant applications from the study group, 110 grant applications were reviewed to determine what types of purchases were made using grant monies (grants for 2004 were removed due to potential lag in workers compensation claims reporting.). The purchases were placed under one of four different categories, which are broken down in Table 8.

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Table 8

*Type of Equipment Purchased With Grant Monies (110 Grants)*

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Manual Material Handling Equipment	Fall Protection Equipment, Including Scaffolding/Lifts	Trench Boxes and Shoring Equipment	Misc. Tools and Other Personal Protective Equipment
32 Grants	41 Grants	14 Grants	23 Grants

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As noted in Table 8, the majority of grants were used to purchase equipment to reduce potential for falls on the jobsite. Following closely behind was manual material handling equipment, which included forklifts, skid steers or other lifting equipment. The remaining two categories applied trench boxes/shoring equipment as stated, and to tools and other personal protective equipment (PPE). The last category included items such as specialized saws or hand tools, reflective vests, respirators, gas monitors, safety glasses, hard hats, or other miscellaneous PPE.

When reviewing the items purchased, it was very interesting to find that the reduction in losses did in fact correlate directly with the type of equipment that had been purchased. Table 9 below shows the type of losses incurred by the study group in both pre grant and post grant time periods.

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Table 9

*Types of Pre Grant and Post Grant Losses Incurred by the Study Group*

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	Number of Pre-Grant Occurrences	Number of Post-Grant Occurrences
Falls	28	14
Strains	60	44
Contact	16	17
All Other	41	28

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The reduction in the type of losses when evaluated with the type of equipment purchased is most noticeable in the area of fall related injuries. A reduction in fall related loss of 50% is an outstanding result when considering the largest portions of grants (41 grants) were used to purchase fall protection equipment. Other types of losses such as strains are often attributed to improper manual material handling. A reduction of 27% in that particular category could also potentially be attributed to the 32 grants that were used to purchase equipment used for manual material handling such as forklifts and skid steers.

Twenty-three of the grants were used to purchase tools and other miscellaneous PPE. It is difficult to determine if these grants could coincide with the 32% reduction in the “all other” losses category. This is due to the extent of the types of injuries that could potentially fall under this classification. However, since the injury classification of “all other” may include injuries

such as cuts/lacerations, eye injuries, or respiratory illnesses, the purchase of some of the tools and PPE under these grants could have potentially impacted the overall reduction. The final classification to be evaluated, contact injuries, had a slight increase in the number of this type of injury between the pre grant and post grant losses.

## Chapter V: Summary, Conclusions and Recommendations

### *Summary*

The purpose of this study was to evaluate the impact the Minnesota Safety Grant Program has had towards the reduction of construction workplace accidents/injuries and to evaluate the overall satisfaction of those construction businesses utilizing the grant program. The researcher examined the previous research study that was performed in 1997-1999 by DLI Research and Statistics and WSC. Although similar in nature to the earlier research, this study was designed to focus specifically on the construction industry. Those contractors receiving Minnesota Safety Hazard Abatement Grants between 2000 and 2004 were selected as the study group.

The research for this study consisted of two phases. Phase one consisted of a survey that was developed using the MWSP survey as a guideline. The new contractors' survey (see Appendix A) was mailed to the 114 construction businesses that received safety grants during the specified time frame. Twenty-two of the surveys were returned as undeliverable and were removed from the study group. Of the remaining 92 contractors' surveys, 69 were returned complete. The contractors' survey tool was used to determine the approval rating of those contractors utilizing the grant program.

Phase two of the study involved statistical analysis of actual losses incurred by the same selected study group. A comparison of mean TTD weeks and mean indemnity payments was made between a baseline group and the study group. This was to determine if those participating in the grant program were experiencing a lower number of losses when compared to those in the baseline group that were not participating in the program. In addition, the number of pre and post grant losses incurred by the study group was also analyzed to determine if there was a reduction in incidents after receipt of a safety grant. The last area studied was relating to the type of

equipment that had been purchased under the grant agreements. It was determined that the type of equipment purchased directly correlated with the reduction in specific types of injuries incurred by the participating contractors.

### *Conclusions*

- Based on the 99% response rate of either “strongly agree” or “agree”, it can be concluded that the safety grant program has met the expectations of the contractors utilizing the program.
- A positive response rate of 94% in the area of customer satisfaction concludes that the majority of the contractors participating in the grant program are satisfied with the overall results of the program.
- Based on the findings of the current study, it can be determined that the timeliness of the grant program could be improved. The percentage of those that showed disapproval in the timeliness of the grant process was 12%.
- It can be concluded that the application process should be redeveloped to make the process easier. Twenty nine percent of the respondents felt the application was difficult to complete.
- Based on the results of the study, it can be concluded that grant recipients have received additional benefits with the use of the grant program. Some of these benefits include a decrease in OSHA recordable incidents, reduction in lost work days, decrease in safety related operating costs, increase in productivity, and in improvement in the company’s safety culture.

- It can be stated that those utilizing the program are very receptive to the manner in which the grant program is operated. This conclusion is based on the high approval rating to the current contractors' survey and those from the research conducted during 1997-1999.
- Based on the findings, it can be concluded that those contractors utilizing the program are experiencing fewer workers' compensation claims. Examination of the loss data indicates the study group overall had a reduction of 29% in workers' compensation claims one year following the receipt of a safety grant.
- It can be determined that grant participants also experience lower indemnity costs and fewer TTD weeks. When compared to contractors not participating in the safety grant program, grant participants showed 10% lower indemnity costs and 42% fewer TTD weeks. Research from the previous research indicates a 32% decrease in lost workday cases and a 19% decrease in workers' compensation premium (Kipman et al., 1999). Whereas the basis for measurement in the current study is not the same as previous research, it can be concluded that use of the grant program has produced a notable reduction in lost work days/weeks, and a reduction in costs associated with those injuries.
- Based on the findings, it can be concluded that the type of equipment purchased has had a direct effect on reduction in specific types of injuries. Of 110 grants that were studied, 41 of the grants were used to purchase fall protection equipment (including scaffoldings/lifts). One year after completion of the grant programs it was noted that a 50% reduction in fall related injuries occurred. Other equipment purchases also had direct correlation with a reduction in the types of injuries incurred. Manual material handling equipment was purchased under 32 grant agreements and later noted a 27% decrease in strain injuries related to manual material handling.

*Recommendations for Improvement*

- Evaluation should be made to determine if there could potentially be a means by which to reduce the current timeframe necessary to obtain grant approval. This is based on results from both the contractors' survey and the MWSP survey indicating dissatisfaction among grant participants relating to the timeliness of the grant project.
- The application should be redeveloped to be more user friendly. By improving the application form, there could potentially be an indirect improvement in grant timeliness.
- The financial benefits of the grant program should be outlined and presented in future grant program marketing materials.

*Recommendations for Future Study*

- Conduct similar research on public sector businesses such as schools and municipalities. Given these types of businesses may have different operational styles than those in the public sector, it could be deemed beneficial to determine if the grant program has been as successful under those operations.
- Analyze the size of the business and current safety culture of the organization (i.e. type/extent of training, safety committees, safety directors, safety budget, etc...). This could help to determine if only larger companies are experiencing benefits of grant participation due to an adequately funded safety program, or if the smaller businesses also benefit from participating in the grant program by experiencing fewer losses and improving awareness.
- Perform additional analysis of other loss related data such as OSHA recordable injuries to determine if receipt of a grant would also correlate with a reduction in recordable injuries. This study was based on data from compensable injuries. It is important to



remember that there may be additional injuries that are considered recordable but not compensable.

### *Conclusion*

The results of this study indicate that WSC efforts to help contractors reduce losses through the Safety Hazard Abatement Grant program have been a success. It is believed this program has the potential to be a leading indicator of programs to come. Whereas the other programs operate under the premise of training development, the Minnesota grant program depicts a more hands-on approach to not only new equipment, but to the training associated with its purchase. It is the opinion of the researcher that training is only as good as the equipment under which it is used. By combining these two critical elements Minnesota has created a win-win-win situation for the state, its businesses, and the employees as well.

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## Appendix A: Contractors' Survey

The Minnesota Safety Grant Program was established to help businesses purchase new equipment and make other physical improvements to enhance workplace safety conditions. Please complete the following questions regarding your businesses participation and experience with the safety grant program.

1. The Safety Grant Program met my company's expectations.
  - Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
  
2. My company has experienced a decrease in the number of OSHA recordable incidents since our participation in the Safety Grant Program.
  - Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
  
3. Through use of the safety grant program, my company has been successful in reducing our number of lost work days.
  - Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
  
4. As a result of the safety grant program, my company has experienced a decrease in safety related operating costs (i.e. costs relating to implementation of a safety program, insurances costs, etc...)
  - Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
  
5. Utilization of the safety grant program has impacted my company's productivity in a positive manner.
  - Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
  
6. The safety culture at my company's work sites has improved as a result of the grant we received.
  - Strongly Agree
  - Agree
  - No Opinion

- Disagree
  - Strongly Disagree
7. The grant application process was easy to complete.
- Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
8. The timeliness of the grant process was within a reasonable time frame.
- Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
9. My company is satisfied with the overall results of the safety grant program.
- Strongly Agree
  - Agree
  - No Opinion
  - Disagree
  - Strongly Disagree
10. My company applied for a MN OSHA Safety Grant for the following reason  
(please choose the answer that best describes your reason for application – choose only one):
- To reduce accidents and costs of accidents.
  - To eliminate hazards.
  - To improve productivity/moral.
  - To comply with MN OSHA Standards.
11. The labor force for my company is primarily (please check only one):
- Union
  - Non-Union
12. The majority of work performed by my company is performed (please check only one):
- Inside the Twin Cities Metro Area
  - Outside the Twin Cities Metro Area

Please return this survey in the self addressed stamped envelope provided. In order to help maintain anonymity of the study group, please do not include a return address or personal business card. Thank you.

## Appendix B: Survey Cover Letter

March 18, 2005

Safety Director – Tom Safety  
Professional Builders, Inc.  
123 4<sup>th</sup> Street SE  
Safety Town, MN 55555

Dear Mr. Safety,

As a graduate student in Risk Control at the University of Wisconsin-Stout, I find safety and loss prevention to be a critical component to the successful operation of any business. You have been chosen to receive this survey based on your past commitment to safety through your participation in the Minnesota Safety Grant Program.

The enclosed survey is being used to obtain data that will assist me in completing my Master's Thesis entitled, *An Evaluation of the Effectiveness of the Minnesota Safety Grant Program in the Construction Industry*. Included with the survey you will also find a Consent form to Participate in UW-Stout Approved Research, which will give further details of my research, and will discuss any risks and benefits that may be associated with your participation in this survey. For your convenience, I have also included a self-addressed stamped envelope in which you can return your completed survey. In order to maintain the strictest level of confidentiality and anonymity, I ask that you please **do not include a return address or professional business card**. The survey is quite short and should take less than five minutes of your time to complete. If you have any questions, contact information is listed on the Consent Form.

Thank you in advance for your prompt response to the enclosed survey, and for your assistance towards completion of my Master's Degree in Risk Control.

Respectfully,

Dawn A. Tiffany  
Graduate Student  
University of Wisconsin-Stout